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09/318,045	05/25/1999	ALAN R. NEUHAUSER	0004332-0074	9843

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Eugene L. Flanagan III
ST.ONGE STEWARD JOHNSON & REENS LLC
986 Bedford Street
Stamford, CT 06905-5619

EXAMINER
LERNER, MARTIN

ART UNIT	PAPER NUMBER
2654	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/318,045	Applicant(s) NEUHAUSER ET AL.	
	Examiner Martin Lerner	Art Unit 2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 January 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 to 18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 to 18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 to 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claims 1, 13 and 16 recite "a first code symbol" and "a second code symbol" which are indefinite. The preambles of these claims already recite "first and second code symbols" and "the first and second code symbols." Thus, it is unclear whether "a first code symbol" and "a second code symbol" in the body of these claims refer to the same code symbols recited in the preamble.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 to 18 are rejected under 35 U.S.C. 102(b) as being anticipated by *Jensen et al. ('490)*.

Regarding independent claims 1 and 13, *Jensen et al. ('490)* discloses a system and method for decoding code symbols in an audio signal, comprising:

"means for accumulating a first signal value of a first code symbol representing a predetermined message symbol and a second signal value of a second code symbol representing the same predetermined message symbol" – the apparatus accumulates data indicating the presence of code components in each of frequency bins of interest repeatedly for at least a major portion of the predetermined time frame interval in which a code symbol can be found (column 21, lines 23 to 34: Figure 11); circuit 320, under control of control circuit 314, accumulates the various code presence signals from the 4N component detector circuits 290 for a multiple number of reset cycles (column 26, lines 17 to 25: Figure 14); in one embodiment, the host processor generates a four state data stream, that is, a data stream in which each data unit can assume one of four distinct data states each representing a unique symbol including two synchronizing symbols termed "E" and "S" and two message information symbols "1" and "0" ("first code symbol" and "second code symbol") each of which represents a respective binary state (column 10, lines 40 to 58: Figure 4); the output signal may be assembled into a larger message ("the same predetermined message symbol")(column 26, lines 32 to 34); control codes include parental control codes or identification numbers to prevent pirating, and consist of a plurality of message symbols (e.g. 1's and 0's) "representing the same predetermined message symbol" (column 28, line 59 to column 10, line 9; column 29, lines 44 to 51);

"means for examining the accumulated first and second signal values to detect the predetermined message symbol represented by the first and second code symbols" – once DSP 266 has accumulated such data for the relevant time frame, it then determines which of the possible code signals was present in the audio signal (column 21, lines 34 to 45: Figure 11); upon termination of the interval for detection of a given symbol, the code determination logic circuit 320 determines which code symbol was received as that symbol for which the greatest number of components were detected during the interval and outputs a signal indicating the detected code symbol at an output terminal 322 (column 26, lines 25 to 34: Figure 14); the output signal may be assembled into a larger message ("the same predetermined message symbol")(column 26, lines 32 to 34); control codes are decoded including parental control codes or identification numbers to prevent pirating, and consisting of a plurality of message symbols (e.g. 1's and 0's) "to detect the predetermined message symbol represented by the first and second code symbols" (column 28, line 59 to column 10, line 9; column 29, lines 44 to 51).

Regarding independent claim 16, *Jensen et al. ('490)* discloses a system for decoding code symbols in an audio signal, comprising:

"an input device for receiving a first code symbol representing a predetermined message symbol and a second code symbol representing the same predetermined message symbol" – code symbols encoded in an analog audio signal are received at input terminal 260 (column 21, lines 46 to 49: Figure 11); in one embodiment, the host

processor generates a four state data stream, that is, a data stream in which each data unit can assume one of four distinct data states each representing a unique symbol including two synchronizing symbols termed "E" and "S" and two message information symbols "1" and "0" ("first code symbol" and "second code symbol") each of which represents a respective binary state (column 10, lines 40 to 58: Figure 4); the output signal may be assembled into a larger message ("the same predetermined message symbol")(column 26, lines 32 to 34); control codes are include parental control codes or identification numbers to prevent pirating, and consist of a plurality of message symbols (e.g. 1's and 0's) "representing the same predetermined message symbol" (column 28, line 59 to column 10, line 9; column 29, lines 44 to 51).

"a digital processor in communication with the input device to receive data therefrom representing the first and second code symbols, the digital processor being programmed to accumulate a first signal value representing the first code symbol and a second signal value representing the second code symbol, the digital processor being further programmed to examine the accumulated first and second signal values to detect the predetermined message symbol" -- the apparatus accumulates data indicating the presence of code components in each of frequency bins of interest repeatedly for at least a major portion of the predetermined time frame interval in which a code symbol can be found (column 21, lines 23 to 34: Figure 11); circuit 320, under control of control circuit 314, accumulates the various code presence signals from the 4N component detector circuits 290 for a multiple number of reset cycles (column 26, lines 17 to 25: Figure 14); once DSP 266 has accumulated such data for the relevant

time frame, it then determines which of the possible code signals was present in the audio signal (column 21, lines 34 to 45: Figure 11); upon termination of the interval for detection of a given symbol, the code determination logic circuit 320 determines which code symbol was received as that symbol for which the greatest number of components were detected during the interval and outputs a signal indicating the detected code symbol at an output terminal 322 (column 26, lines 25 to 34: Figure 14); the output signal may be assembled into a larger message ("the same predetermined message symbol")(column 26, lines 32 to 34); control codes include parental control codes or identification numbers to prevent pirating, and consist of a plurality of message symbols (e.g. 1's and 0's) "representing the same predetermined message symbol" (column 28, line 59 to column 10, line 9; column 29, lines 44 to 51).

Regarding claim 2, *Jensen et al. ('490)* discloses that for the purpose of detecting the presence and time of symbols, the sum of the values of SNR(j) ("a third signal value derived from the first and second signal values") for each possible synch symbol and data symbol is determined; it is determined whether the sum of its corresponding values SNR(j) is greater than any of the others (column 22, lines 16 to 24).

Regarding claim 3, a sum of the values of SNR(j) is a linear combination of the SNR(j) values for each of the code symbols.

Regarding claim 4, *Jensen et al. ('490)* discloses amplitude adjustment factors which serve to adjust the amplitudes of the various code frequency components; amplitudes of the relative frequency components are adjusted so that they will be

masked during encoding to be inaudible to human hearing (column 13, lines 23 to 53); the adjusted amplitudes at the decoder are also non-linear functions of the original amplitudes because the amplitudes at the encoder are non-linear functions of the original amplitudes; *Jensen et al. ('490)* discloses that the signal amplitudes may be measured as an integration, root-mean-square or relative discrete value to evaluate masking ability (column 7, lines 27 to 38); at least the root-mean-square is a "non-linear function" of the original amplitude.

Regarding claim 5, *Jensen et al. ('490)* discloses that each of the symbols is representing by a unique set of code frequency components; the symbol S is represented by a first unique group of ten code frequency components f_1 through f_{10}; the symbol E is represented by a second unique group of ten code frequency components f_1 through f_{10}; the symbol 0 is represented by a further unique group of ten code frequency components f_1 through f_{10}; and the symbol 1 is represented by a further unique group of ten code frequency components f_1 through f_{10}; (column 10, line 59 to column 11, line 32: Figure 4); a noise level estimate is carried out around each frequency component bin in which a code component can occur; once the noise level for the bin of interest has been estimated, a signal-to-noise ratio for that bin SNR(j) ("component value" "characteristic of a respective frequency component") is estimated by dividing the energy level B(j) in the bin of interest by the estimated noise level NS(j)(column 20, line 43 to column 21, line 22).

Regarding claim 6, *Jensen et al. ('490)* discloses that symbol detection intervals for the decoders may be established based on the timing of synchronization symbols

transmitted with each encoded message and have a predetermined order; the decoders are operative initially to search for the presence of the first anticipated synchronization symbol, that is, the encoded E symbol which is transmitted during the predetermined period and determine its transmission interval; the decoders search for the presence of code components characterizing the symbol S, and when it is detected, the decoders determine its transmission interval; from this point, the detection of each of the data bits symbols are set (column 26, lines 35 to 59); "S" and "E" are synchronization ("marker") symbols and "1" and "0" are data symbols (column 10, lines 40 to 58: Figure 4).

Regarding claim 7, *Jensen et al. ('490)* discloses a memory 270 for storing the accumulation of detected code symbols (column 21, lines 34 to 42: Figure 11), and DSP 266 decodes a symbol by examining the sum of the values of SNR(j) ("signal values") for each possible synch and data symbol (column 21, lines 46 to 59; column 22, lines 16 to 53: Figure 11).

Regarding claim 8, *Jensen et al. ('490)* discloses that a signal-to-noise ratio for each frequency bin SNR(j) ("signal value") is estimated by dividing the energy level B(j) in the bin of interest by the estimated noise level NS(j)(column 20, line 43 to column 21, line 22); energy level B(j) and noise level NS(j) are "multiple other signal values" which are used to produce signal-to-noise ratios SNR(j) ("signal values").

Regarding claim 9, *Jensen et al. ('490)* discloses that code symbols are repeated during a characteristic time frame interval in which the encoded message has a predetermined duration and order (column 12, lines 28 to 55; column 26, lines 35 to 59: Figure 6).

Regarding claim 10, *Jensen et al. ('490)* discloses that each of the symbols is representing by a unique set of code frequency components; the symbol S is represented by a first unique group of ten code frequency components f_1 through f_{10}; the symbol E is represented by a second unique group of ten code frequency components f_1 through f_{10}; the symbol 0 is represented by a further unique group of ten code frequency components f_1 through f_{10}; and the symbol 1 is represented by a further unique group of ten code frequency components f_1 through f_{10}; (column 10, line 59 to column 11, line 32: Figure 4); a noise level estimate is carried out around each frequency component bin in which a code component can occur; once the noise level for the bin of interest has been estimated, a signal-to-noise ratio for that bin SNR(j) ("component value" "characteristic of a respective frequency component") is estimated by dividing the energy level B(j) in the bin of interest by the estimated noise level NS(j)(column 20, line 43 to column 21, line 22).

Regarding claims 11, 14 and 17, *Jensen et al. ('490)* discloses that a decoder includes an input terminal for receiving the audio signal which may be a signal picked up from a microphone ("acoustic transducer")(column 19, lines 57 to 67: Figure 11); a digital signal processor 266 is coupled to memory 270 for storing the detected code symbols (column 21, lines 34 to 45: Figure 11).

Regarding claims 12, 15 and 18, *Jensen et al. ('490)* discloses that the system may be enclosed in a housing 382 which is sufficiently small in size to be carried on the person of an audience member participating in an audience estimate survey (column 27, lines 34 to 48; column 28, lines 6 to 13: Figure 17).

Response to Arguments

Applicants' arguments filed 28 January 2002 have been fully considered but they are not persuasive.

Applicants maintain that *Jensen et al. ('490)* detects a symbol dependent solely on the accumulation of data within one symbol interval, whereas the invention detects a message symbol based on the accumulation of at least two code symbols separated in time by at least one further code symbol representing a different message. Applicants refer to Figure 3C of the Specification in which symbols S_1 and $S_{(1+\delta) \bmod M}$ represent a common message symbol with code symbols representing other message symbols positioned in between them.

However, the limitation of "at least one code symbol representing a different one of the message symbols positioned in between the first and second symbols" is here found only in the preambles of independent claims 1, 13 and 16. Moreover, the body of each of these claims does not depend for completeness on its respective preamble. Therefore, the recitation of "at least one code symbol representing a different one of the message symbols positioned in between the first and second symbols" has not been given patentable weight because the recitation occurs only in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190

USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). The body of the claims set forth anew "a first code symbol" and "a second code symbol." Thus, Applicants' argument regarding the example of symbols S_1 and $S_{(1+\delta) \bmod M}$ is irrelevant because any limitation to this effect at best occurs solely in the preamble.

Moreover, *Jensen et al. ('490)* anticipates the limitation of "a first code symbol and a second code symbol representing the same predetermined message symbol." *Jensen et al. ('490)* discloses an embodiment where control codes are utilized as parental control codes or identification numbers to prevent tape pirating. (Column 28, Line 59 to Column 29, Line 9; Column 29, Lines 44 to 51) *Jensen et al. ('490)* states that a plurality of code symbols may be assembled into a larger message. (Column 26, Lines 32 to 34) Thus, these parental control codes or identification numbers consist of a plurality of digits. These digits are a plurality of binary 1's and 0's in the four data state set of symbols in *Jensen et al. ('490)*. To obtain each of the digits, *Jensen et al. ('490)* repeatedly accumulates signal values of code frequency components in respective frequency component bins. A plurality of digits then represents the same predetermined message symbol, where the predetermined message symbol is a parental control code or identification number. During patent examination, the pending claims must be "given the broadest reasonable interpretation consistent with the specification." Applicant always has the opportunity to amend the claims during prosecution, and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. *In re Prater*, 415

F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA 1969) See MPEP 2111. Thus, the parental control codes and identification numbers of *Jensen et al. ('490)* are the same predetermined message symbol represented by at least first and second code symbols.

Therefore, the rejection of claims 1 to 18 under 35 U.S.C. 102(b) as being anticipated by *Jensen et al. ('490)* is proper.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin Lerner whose telephone number is (703) 308-9064. The examiner can normally be reached on 9:30 AM to 6:00 PM Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold can be reached on (703) 305-4379. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

ml
March 19, 2002

MARSHA D. BANKS-HAROLD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600